WHAT IS CLAIMED IS:

1. A method for the manufacture of a catalyst for the production of carbon fibrils comprising incorporating an effective yield-enhancing amount of a carboxylate into a fibril-forming catalyst.

2. A method for the manufacture of a catalyst for the production of carbon fibrils comprising contacting a fibril-forming catalyst with an effective yield-enhancing amount of a carboxylate.

3. A method as recited in claim 1 wherein the catalyst is supported on a catalyst support and the catalyst support is treated with the carboxylate before the catalyst is supported thereupon.

4. A method as recited in claim 1 wherein a supported catalyst is formed in the presence of the carboxylate.

5. A method as recited in claim 1 wherein the catalyst and the support are coprecipitated in the presence of the carboxylate.

6. A method as recited in claim 1 wherein the catalyst support is treated with carboxylate after the catalyst is deposited upon the catalyst support.

7. A method as recited in claim 1 wherein the carboxylate comprises the anion of a water soluble carboxylic acid.

8. A method as recited in claim 7 wherein the carboxylic acid is a substituted or unsubstituted mono-, di-, tri- or polycarboxylic acid.

9. A method as recited in claim 7 wherein the carboxylic acid comprises a lower carboxylic acid of from 1 to 4 carbon atoms.

10. A method as recited in claim 7 wherein the carboxylic acid is selected from formic, acetic, propionic, butyric, oxalic, citric, malonic, glutaric, succinic or tartaric acid.

11. A method as recited in claim 7 wherein the carboxylic acid is formic acid, acetic acid or a mixture of both.

12. A method as recited in claim 1 wherein the carboxylate is selected from a carboxylic acid or the sodium, potassium, ammonium or substituted quaternary ammonium salts of a carboxylic acid.

13. A method for the manufacture of a catalyst for the production of carbon fibrils comprising precipitating an effective amount of a compound of a fibril-producing catalytic metal from an aqueous solution onto a slurry of support particles in the presence of an effective yield-enhancing amount of a carboxylate.

14. A method for the manufacture of a catalyst for the production of carbon fibrils comprising the steps of:

(a) forming an aqueous solution of an iron compound or iron and molybdenum compounds;

(b) forming a slurry of catalyst support particles comprising alumina and/or magnesia particles;

(c) precipitating an iron compound or iron and molybdenum compounds onto said alumina and/or magnesia particles in the presence of an effective yield-enhancing amount of a carboxylate; and

(d) separating the so-impregnated support material from said slurry and further processing it to produce a supported fibril-forming catalyst.

15. A method as recited in claim 14 wherein the precipitated catalyst is washed with a solution of a carboxylate prior to further processing to produce said fibril-forming catalyst.

16. A method as recited in claim 14 wherein said carboxylate is introduced into the slurry of support material prior to introduction of the solution containing said iron compound or said iron and molybdenum compounds.

17. A method as recited in claim 14 wherein the carboxylate comprises an anion of a carboxylic acid and the solution from which the iron compound or the iron and molybdenum compounds are precipitated onto said alumina and/or magnesia particles contains from about 0.04 to about 4 grams of the anion per gram of supported fibril-forming catalyst.

18. A method as recited in claim 14 wherein the said carboxylate is derived from formic acid or acetic acid.

19. A method as recited in claim 14 wherein the carboxylate comprises an anion of a carboxylic acid and the weight ratio of anion to iron or iron and molybdenum in the solution from which the iron compound or iron and molybdenum compounds is precipitated is in the range of 0.07 to 14.

20. A method as recited in claim 14 wherein the carboxylate is acetic acid, the fibril-forming metal compound includes an iron compound and the weight ratio of acetate to iron in the solution from which an iron compound is precipitated is in the range of 0.1 to 5.

21. A catalyst for the production of carbon fibrils produced by the method of incorporating an effective yield-enhancing amount of a carboxylate into a fibril-forming catalyst.

22. A method for the manufacture of carbon fibrils comprising passing a suitable fibril-forming feed stock under temperature and pressure conditions suitable for formation of fibrils over a catalyst produced by the method of incorporating an effective yield enhancing amount of a carboxylate into a fibril-forming catalyst.

23. A carbon fibril material made by the steps of passing a suitable fibril-forming feed stock under temperature and pressure conditions suitable for formation of fibrils over a catalyst produced by the method of incorporating an effective yield enhancing amount of a carboxylate into a fibril-forming catalyst.

24. A method of making a carbon fibril-forming catalyst comprising the steps of:

(a) forming an aqueous solution of a compound of at least one metal having fibril-forming catalytic properties and an aluminum and/or magnesium compound;

(b) coprecipitating a compound of the fibril-forming metal and an aluminum and/or magnesium compound; and

(c) further processing the coprecipitate to produce a supported fibril-forming catalyst.

25. A method of making a fibril-forming catalyst as recited in claim 24 wherein said metal includes iron or iron and molybdenum, said iron compound or iron and molybdenum compounds are precipitated in the presence of a yield-enhancing amount of a carboxylate and said coprecipitate is dried and finely ground.

26. A carbon fibril-forming catalyst prepared by the method of:

(a) forming an aqueous solution of a compound of a metal having fibril-forming catalytic properties and an aluminum and/or magnesium compound;

(b) coprecipitating a compound of said fibril-forming metal and an aluminum and/or magnesium compound; and

(c) further processing the coprecipitate to produce a supported fibril-forming catalyst.

27. A carbon fibril-forming catalyst as recited in claim 26 wherein said metal includes iron or iron and molybdenum, an iron compound or iron and molybdenum compounds are precipitated in the presence of a yield-enhancing amount of a carboxylate and wherein said coprecipitate is dried and finely ground.

28. A method for production of carbon fibrils comprising passing a suitable fibril-forming feedstock under temperature and pressure conditions suitable for formation of fibrils over a catalyst prepared by the steps of:

(a) forming an aqueous solution of a compound of a metal having fibril-forming catalytic properties and an aluminum and/or magnesium compound;

(b) coprecipitating a compound of the fibril-forming metal and an aluminum and/or magnesium compound; and

(c) further processing the coprecipitate to produce a supported fibril-forming catalyst.

29. A carbon fibril material made by passing a suitable fibril-forming feedstock under temperature and pressure conditions suitable for formation of fibrils over a catalyst prepared by the steps of:

(a) forming an aqueous solution of a compound of a metal having fibril-forming catalytic

properties and an aluminum and/or magnesium compound;

(b) coprecipitating a compound of the fibril-forming metal and an aluminum and/or magnesium compound; and

(c) further processing the coprecipitate to produce a supported fibril-forming catalyst.

30. A method of making a fibril-forming catalyst comprising the steps of:

(a) forming an aqueous mixture comprising:

(i) an aqueous solution of a compound of a metal having fibril-forming catalytic properties and a compound of aluminum and/or magnesium and

(ii) a slurry of an aggregate of carbon fibrils, a preponderance of said fibrils having a length to diameter ratio of at least five, an external diameter of from 3.5 to 75 nanometers and a wall thickness of 0.1 to 0.4 times the said external diameter, said fibrils having graphitic layers substantially parallel to the fibril axis and being substantially free of pyrolytically deposited carbon;

(b) coprecipitating a compound of the fibril-forming metal and an aluminum and/or magnesium compound onto the fibril aggregate; and

(c) further processing the coprecipitated material to form a supported fibril-forming catalyst.

31. A method as recited in claim 30 wherein said aqueous solution contains from about 0.01 to about 1 gram of iron, from about 0.005 to about 0.25 gram of molybdenum and from about 0.01 to about 1 gram of aluminum and/or magnesium per gram of fibril-forming catalyst and said slurry contains from about 0.01 to about 0.9 gram of aggregates per gram of supported fibril-forming catalyst.

32. A carbon fibril-forming catalyst prepared by the steps of:

(a) forming an aqueous mixture comprising

(i) an aqueous solution of an iron compound or iron and molybdenum compounds and an aluminum and/or magnesium compound and

(ii) a slurry of an aggregate of carbon fibrils, a preponderance of said fibrils having a length to diameter ratio of at least five, an external diameter of from 3.5 to 75 nanometers and a wall thickness of 0.1 to 0.4 times the said

external diameter, said fibrils having graphitic layers substantially parallel to the fibril axis and being substantially free of pyrolytically deposited carbon,

(b) coprecipitating an aluminum and/or magnesium compound and an iron compound or iron and molybdenum compounds onto the fibril aggregate; and

(c) further processing the coprecipitated material to form a supported fibril-forming catalyst.

33. A method for production of carbon fibrils comprising passing a suitable fibril-forming feedstock under temperature and pressure conditions suitable for formation of fibrils over a catalyst prepared by the steps of:

(a) forming an aqueous mixture comprising:

(i) an aqueous solution of an iron compound or iron and molybdenum compounds and an aluminum and/or magnesium compound, and

(ii) a slurry of an aggregate of carbon fibrils, a preponderance of said fibrils having a length to diameter ratio of at least five, an external diameter of from 3.5 to 75 nanometers and a wall thickness of 0.1 to 0.4 times the said

external diameter, said fibrils having graphitic layers substantially parallel to the fibril axis and being substantially free of pyrolytically deposited carbon,

(b) coprecipitating an aluminum and/or magnesium compound and an iron compound or iron and molybdenum compounds onto the fibril aggregate; and

(c) further processing the coprecipitated material to form a supported fibril-forming catalyst.

34. A carbon fibril material made by the steps of passing a suitable fibril-forming feedstock under temperature and pressure conditions suitable for formation of fibrils over a catalyst prepared by the steps of:

(a) forming an aqueous mixture comprising:

(i) an aqueous solution of an iron compound or iron and molybdenum compounds and an aluminum and/or magnesium compound, and

(ii) a slurry of an aggregate of carbon fibrils, a preponderance of said fibrils having a length to diameter ratio of at least five, an external diameter of from 3.5 to 75 nanometers and a wall thickness of 0.1 to 0.4 times the said

external diameter, said fibrils having graphitic layers substantially parallel to the fibril axis and being substantially free of pyrolytically deposited carbon,

(b) coprecipitating an aluminum and/or magnesium compound and an iron compound or iron and molybdenum compounds onto the fibril aggregate; and

(c) further processing the coprecipitated material to form a supported fibril-forming catalyst.

35. A method of making a fibril-forming catalyst comprising the steps of:

(a) forming an aqueous solution of a compound of a metal having fibril-forming catalytic properties;

(b) forming a slurry of magnesia particles and aggregates of carbon fibrils, a preponderance of said fibrils having a length to diameter ratio of at least five, an external diameter of from 3.5 to 75 nanometers and a wall thickness of 0.1 to 0.4 times the said external diameter, said fibrils having graphitic layers substantially parallel to

the fibril axis and being substantially free to pyrolytically deposited carbon;

(c) adding the aqueous solution and the slurry together and thereby incorporating a compound of the fibril-forming metal onto said magnesia particles in said fibril aggregates; and

(d) further processing the precipitated material to form a supported fibril-forming catalyst.

36. A method as recited in claim 35 wherein said aqueous solution contains from about 0.01 to about 1 gram of iron and from about 0.005 to about 0.25 gram of molybdenum per gram of fibril-forming catalyst and said slurry contains from about 0.01 to about 1 gram of magnesia and from about 0.01 to about 0.9 gram of aggregates per gram of supported fibril-forming catalyst.

37. A method as recited in claim 35 wherein the precipitated material is treated with a carboxylate before further processing.

38. A carbon fibril-forming catalyst prepared by the steps of:

(a) forming an aqueous solution of an iron compound or iron and molybdenum compounds;

(b) forming a slurry of magnesia particles and aggregates of carbon fibrils, a preponderance of said fibrils having a length to diameter ratio of at least five, an external diameter

of from 3.5 to 75 nanometers and a wall thickness of 0.1 to 0.4 times the said external diameter, said fibrils having graphitic layers substantially parallel to the fibril axis and being substantially free of pyrolytically deposited carbon;

(c) adding the aqueous solution and the slurry together and thereby incorporating an iron compound or iron and molybdenum compounds onto said magnesia particles in said fibril aggregates; and

(d) further processing the precipitated material to form a supported fibril-forming catalyst.

39. A catalyst as recited in claim 38 wherein the precipitated material is treated with a carboxylate before further processing.

40. A method for the production of carbon fibrils comprising passing a suitable fibril-forming feedstock under temperature and pressure conditions suitable for formation of fibrils over a catalyst prepared by the steps of:

(a) forming an aqueous solution of an iron compound or iron and molybdenum compounds;

(b) forming a slurry of magnesia particles and aggregates of carbon fibrils, a preponderance of said fibrils having a length to diameter ratio of at least five, an external diameter

of from 3.5 to 75 nanometers and a wall thickness of 0.1 to 0.4 times the said external diameter, said fibrils having graphitic layers substantially parallel to the fibril axis and being substantially free of pyrolytically deposited carbon;

(c) adding the aqueous solution and the slurry together and thereby incorporating a compound of the fibril-forming metal onto said magnesia particles in said fibril aggregates; and

(d) further processing the precipitated material to form a supported fibril-forming catalyst.

41. A carbon fibril material made by the steps of passing a suitable fibril-forming feedstock under temperature and pressure conditions suitable for formation of fibrils over a catalyst prepared by the steps of:

(a) forming an aqueous solution of an iron compound or iron and molybdenum compounds;

(b) forming a slurry of magnesia particles and aggregates of carbon fibrils, a preponderance of said fibrils having a length to diameter ratio of at least five, an external diameter of from 3.5 to 75 nanometers and a wall thickness of 0.1 to 0.4 times the said external diameter, said fibrils having

graphitic layers substantially parallel to the fibril axis and being substantially free of pyrolytically deposited carbon;

(c) adding the aqueous solution and the slurry together and thereby incorporating a compound of the fibril-forming metal onto said magnesia particles in said fibril aggregates; and

(d) further processing the precipitated material to form a supported fibril-forming catalyst.

42. A method of making a fibril-forming catalyst comprising the steps of:

(a) forming an aqueous mixture comprising:

(i) an aqueous solution of a compound of a metal having fibril-forming catalytic properties and a compound of aluminum and/or magnesium and

(ii) a slurry of carbon particles having a high degree of structure and an open pore structure with internal surface area;

(b) coprecipitating a compound of the fibril-forming metal together with an aluminum and/or magnesium compound onto the carbon particles; and

(c) further processing the coprecipitated material to form a supported fibril-forming catalyst.

43. A method as recited in claim 42 wherein said aqueous solution contains from about 0.01 to about 1 gram of iron, from about 0.005 to about 0.25 gram of molybdenum and from about 0.01 to about 1 gram of aluminum and/or magnesium per gram of fibril-forming catalyst and said slurry contains from about 0.01 to about 0.9 gram of carbon particles per gram of supported fibril-forming catalyst.

44. A carbon fibril-forming catalyst prepared by the steps of:

(a) forming an aqueous mixture comprising

(i) an aqueous solution of an iron compound or iron and molybdenum compounds and an aluminum and/or magnesium compound and

(ii) a slurry of carbon particles having a high degree of structure and an open pore structure with internal surface area;

(b) coprecipitating an aluminum and/or magnesium compound and an iron compound or iron and molybdenum compounds onto the carbon particles; and

(c) further processing the coprecipitated material to form a supported fibril-forming catalyst.

45. A method for production of carbon fibrils comprising passing a suitable fibril-forming feedstock under temperature and pressure conditions suitable for formation of fibrils over a catalyst prepared by the steps of:

(a) forming an aqueous mixture comprising:

(i) an aqueous solution of an iron compound or iron and molybdenum compounds and an aluminum and/or magnesium compound, and

(ii) a slurry of carbon particles having a high degree of structure and an open pore structure with internal surface area;

(b) coprecipitating an aluminum and/or magnesium compound and an iron compound or iron and molybdenum compounds onto the carbon particles; and

(c) further processing the coprecipitated material to form a supported fibril-forming catalyst.

46. A carbon fibril material made by the steps of passing a suitable fibril-forming feedstock under temperature and pressure conditions suitable for formation of fibrils over a catalyst prepared by the steps of:

(a) forming an aqueous mixture comprising:

(i) an aqueous solution of an iron compound or iron and molybdenum compounds and an aluminum and/or magnesium compound, and

(ii) a slurry of carbon particles having a high degree of structure and an open pore structure with internal surface area;

(b) coprecipitating an aluminum and/or magnesium compound and an iron compound or iron and molybdenum compounds onto the carbon particles; and

(c) further processing the coprecipitated material to form a supported fibril-forming catalyst.

47. A method of making a fibril-forming catalyst comprising the steps of:

(a) forming an aqueous solution of a compound of a metal having fibril-forming catalytic properties;

(b) forming a slurry of magnesia particles and carbon particles having a high degree of structure and an open pore structure with internal surface area;

(c) adding the aqueous solution and the slurry together and thereby incorporating a compound

of the fibril-forming metal onto said magnesia particles in the carbon particles; and

(d) further processing the precipitated material to form a supported fibril-forming catalyst.

48. A method as recited in claim 47 wherein said aqueous solution contains from about 0.01 to about 1 gram of iron and from about 0.005 to about 0.25 gram of molybdenum per gram of fibril-forming catalyst and said slurry contains from about 0.01 to about 1 gram of magnesia and from about 0.01 to about 0.9 of carbon particles per gram of supported fibril-forming catalyst.

49. A method as recited in claim 47 wherein the precipitated material is treated with a carboxylate before further processing.

50. A carbon fibril-forming catalyst prepared by the steps of:

(a) forming an aqueous solution of an iron compound or iron and molybdenum compounds;

(b) forming a slurry of magnesia particles and carbon particles having a high degree of structure and an open pore structure with internal surface area;

(c) adding the aqueous solution and the slurry together and thereby incorporating an iron compound or iron and molybdenum compounds

onto said magnesia particles in the carbon particles; and

(d) further processing the precipitated material to form a supported fibril-forming catalyst.

51. A catalyst as recited in claim 50 wherein the precipitated material is treated with a carboxylate before further processing.

52. A method for the production of carbon fibrils comprising passing a suitable fibril-forming feedstock under temperature and pressure conditions suitable for formation of fibrils over a catalyst prepared by the steps of:

(a) forming an aqueous solution of an iron compound or iron and molybdenum compounds;

(b) forming a slurry of magnesia particles and carbon particles having a high degree of structure and an open pore structure with internal surface area;

(c) adding the aqueous solution and the slurry together and thereby incorporating a compound of the fibril-forming metal onto said magnesia particles in the carbon particles; and

(d) further processing the precipitated material to form a supported fibril-forming catalyst.

53. A carbon fibril material made by passing a suitable fibril-forming feedstock under temperature and pressure

conditions suitable for formation of fibrils over a catalyst prepared by the steps of:

(a) forming an aqueous solution of an iron compound or iron and molybdenum compounds;

(b) forming a slurry of magnesia particles and carbon particles having a high degree of structure and an open pore structure with internal surface area;

(c) adding the aqueous solution and the slurry together and thereby incorporating a compound of the fibril-forming metal onto said magnesia particles in the carbon particles; and

(d) further processing the precipitated material to form a supported fibril-forming catalyst.

54. A catalyst support comprising an aggregate of carbon fibrils, a preponderance of said fibrils having a length to diameter ratio of at least five, an external diameter of from 3.5 to 75 nanometers and a wall thickness of 0.1 to 0.4 times the said external diameter, said fibrils having graphitic layers substantially parallel to the fibril axis and being substantially free of pyrolytically deposited carbon.

55. A catalyst support as recited in claim 54 wherein said aggregate comprises fibrils randomly entangled with each other to form entangled balls.

56. A catalyst support as recited in claim 54 wherein said aggregate comprises bundles of straight to slightly bent or kinked carbon fibrils having substantially the same relative orientation.

57. A catalyst support as recited in claim 54 wherein said aggregates comprise straight to slightly bent or kinked fibrils which are loosely entangled with each other.

58. A catalyst support as recited in claim 54 wherein said aggregates are characterized by a crystalline graphitic structure and a morphology defined by a fishbone-like arrangement of the graphic layers along the axis of the filaments

59. A catalyst support as recited in claim 54 having a macroscopic porosity in excess of 1 cc/gm of fibrils.

60. A catalyst support as recited in claim 54 having a macroscopic porosity in excess of 5 cc/gm of fibrils.

61. A catalyst support as recited in claim 54 wherein said carbon fibril aggregate has a total surface area of from about 250 to about 1000 m^2/gram.

62. A catalyst for the production of carbon fibrils comprising:

(a) a catalyst support comprising an aggregate of carbon fibrils, a preponderance of said fibrils having a length to diameter ratio of at least five, an external diameter of from 3.5 to 75 nanometers and a wall thickness of 0.1 to 0.4 times the said external diameter,

said fibrils having graphitic layers substantially parallel to the fibril axis and being substantially free of pyrolytically deposited carbon; and

(b) a catalytically effective amount of one or more metals having fibril-forming catalytic properties supported on said aggregate.

63. A catalyst as recited in claim 62 wherein said fibril-forming catalyst metal comprises iron or iron and molybdenum.

64. A catalyst as recited in claim 62 wherein said fibril-forming catalyst comprises the mixed oxides of (1) iron or iron and molybdenum, and (2) aluminum or magnesium.

65. A catalyst as recited in claim 62 containing from about 1 to about 70 weight percent of iron or iron and molybdenum, from about 1 to about 95 weight percent of alumina and/or magnesia and from about 1 to about 90 weight percent of carbon fibril aggregates.

66. A catalyst as recited in claim 62 containing from about 5 to about 50 weight percent of iron or iron and molybdenum, from about 10 to about 85 weight percent of alumina and/or magnesia and from about 20 to about 70 weight percent of carbon fibril aggregates.

67. A catalyst as recited in claim 62 containing from about 12 to about 40 weight percent of iron or iron and molybdenum, from about 20 to about 80 weight percent of alumina and/or

56. A catalyst support as recited in claim 54 wherein said aggregate comprises bundles of straight to slightly bent or kinked carbon fibrils having substantially the same relative orientation.

57. A catalyst support as recited in claim 54 wherein said aggregates comprise straight to slightly bent or kinked fibrils which are loosely entangled with each other.

58. A catalyst support as recited in claim 54 wherein said aggregates are characterized by a crystalline graphitic structure and a morphology defined by a fishbone-like arrangement of the graphic layers along the axis of the filaments

59. A catalyst support as recited in claim 54 having a macroscopic porosity in excess of 1 cc/gm of fibrils.

60. A catalyst support as recited in claim 54 having a macroscopic porosity in excess of 5 cc/gm of fibrils.

61. A catalyst support as recited in claim 54 wherein said carbon fibril aggregate has a total surface area of from about 250 to about 1000 m^2/gram.

62. A catalyst for the production of carbon fibrils comprising:

(a) a catalyst support comprising an aggregate of carbon fibrils, a preponderance of said fibrils having a length to diameter ratio of at least five, an external diameter of from 3.5 to 75 nanometers and a wall thickness of 0.1 to 0.4 times the said external diameter,

said fibrils having graphitic layers substantially parallel to the fibril axis and being substantially free of pyrolytically deposited carbon; [and]

(b) a catalytically effective amount of one or more metals having fibril-forming catalytic properties supported on said aggregate[.]; and

63. A catalyst as recited in claim 62 wherein said fibril-forming catalyst metal comprises iron or iron and molybdenum.

64. A catalyst as recited in claim 62 wherein said fibril-forming catalyst comprises the mixed oxides of (1) iron or iron and molybdenum, and (2) aluminum or magnesium.

65. A catalyst as recited in claim 62 containing from about 1 to about 70 weight percent of iron or iron and molybdenum, from about 1 to about 95 weight percent of alumina and/or magnesia and from about 1 to about 90 weight percent of carbon fibril aggregates.

66. A catalyst as recited in claim 62 containing from about 5 to about 50 weight percent of iron or iron and molybdenum, from about 10 to about 85 weight percent of alumina and/or magnesia and from about 20 to about 70 weight percent of carbon fibril aggregates.

67. A catalyst as recited in claim 62 containing from about 12 to about 40 weight percent of iron or iron and molybdenum, from about 20 to about 80 weight percent of alumina and/or

magnesia and from about 30 to about 50 weight percent of carbon fibril aggregates.

68. A method for production of carbon fibrils comprising passing a suitable fibril-forming feedstock under temperature and pressure conditions suitable for formation of fibrils over a catalyst comprising:

(a) a catalyst support comprising an aggregate of carbon fibrils, a preponderance of said fibrils having a length to diameter ratio of at least five, an external diameter of from 3.5 to 75 nanometers and a wall thickness of 0.1 to 0.4 times the said external diameter, said fibrils having graphitic layers substantially parallel to the fibril axis and being substantially free of pyrolytically deposited carbon; and

(b) a catalytically effective amount of one or more metals having a fibril-forming catalytic properties supported on said aggregate.

69. A carbon fibril of essentially pure carbon having a carbon fibril-forming catalytic metal impurity level of not more than about 1.1 weight percent and having a length to diameter ratio of at least 5, an external diameter of from 3.5 to 75 nanometers and composed of graphitic layers substantially parallel to the fibril axis.

70. A carbon fibril of essentially pure carbon having a catalyst support impurity level of not more than about 5 weight percent and having a length to diameter ratio of at least 5, an external diameter of from 3.5 to 75 nanometers and composed of graphitic layers substantially parallel to the fibril axis.

71. A carbon fibril of essentially pure carbon having a total impurity level of not more than about 6 weight percent and having a length to diameter ratio of at least 5, an external diameter of from 3.5 to 75 nanometers and composed of graphitic layers substantially parallel to the fibril axis.